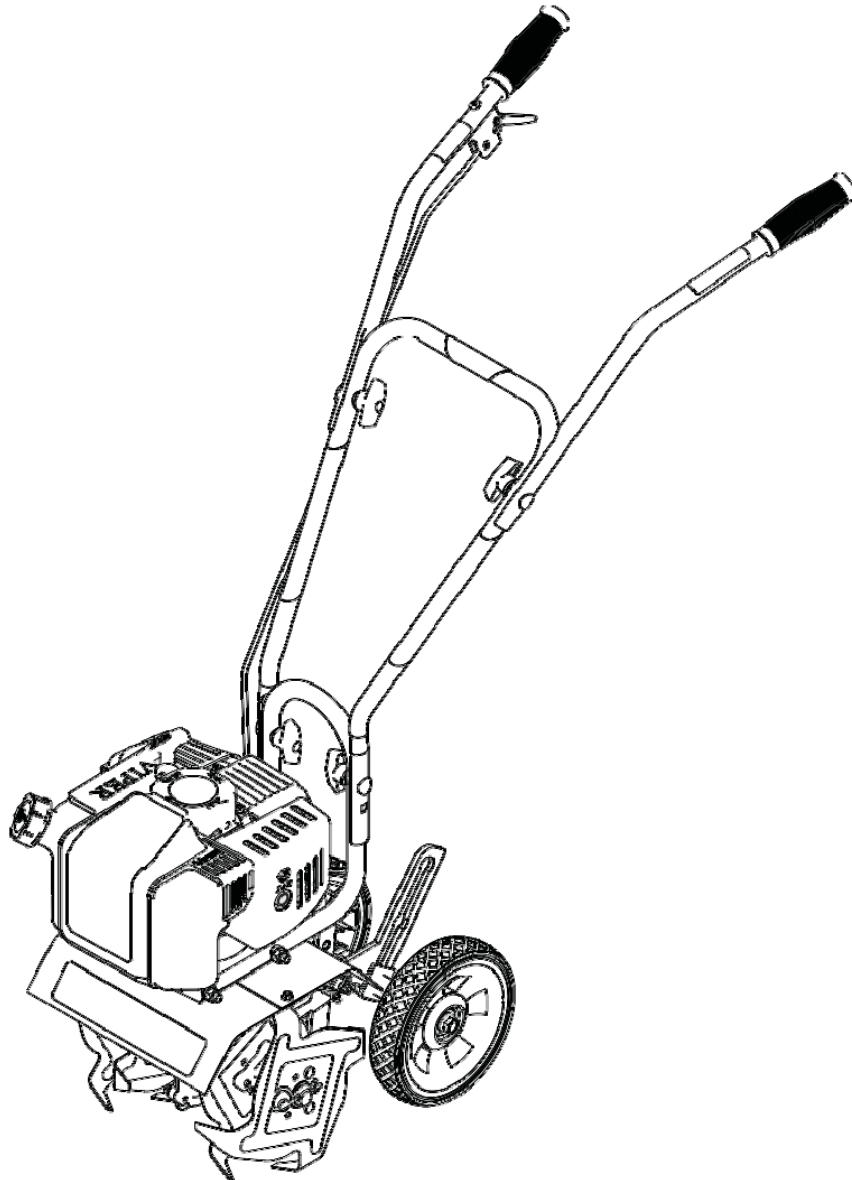


DR[®] PILOT 2 Cycle Tiller/Cultivator



SAFETY & OPERATING INSTRUCTIONS



Serial No. _____

Order No. _____

DR Power Equipment
Toll-free phone: 1-800-DR-OWNER (376-9637)
Fax: 1-802-877-1213
Website: www.DRpower.com

WARNING

Read and understand this manual and all instructions before operating the DR PILOT 2 Cycle Tiller/Cultivator.

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Conventions used in this manual

WARNING

This indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION

This indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE

This information is important in the proper use of your machine. Failure to follow this instruction could result in damage to your machine or property.

Tip: This is a helpful hint to guide you in getting the most out of your DR PILOT 2 Cycle Tiller/Cultivator.

Tools Needed: This indicates you will need a special tool to perform a maintenance function on your Tiller/Cultivator.

NOTE: *This information may be helpful to you.*

We have done our utmost to ensure that your DR PILOT 2 Cycle Tiller/Cultivator will be one of the most trouble-free and satisfying pieces of equipment you have ever owned. Please let us know of any questions you may have. We want to answer them as quickly as possible. When you do call, please have your order number, or serial number handy. **For technical assistance, please visit our website at www.DRpower.com or call Toll-Free 1-800-DR-OWNER (376-9637) and one of our Technical Support Representatives will be happy to help you.** We also hope to hear from you on how much you like your new helper.

If you are ever unsure about an action you are about to take, don't do it, visit our website at www.DRpower.com for help or information.

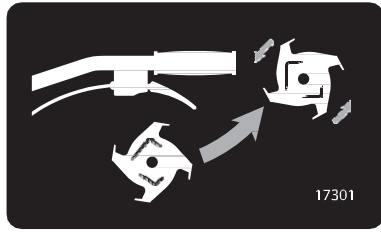
DR Power Equipment reserves the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your machine.

Chapter 1: Important Safety Considerations

We want you to enjoy years of safe and productive use from your DR PILOT 2 Cycle Tiller/Cultivator. We do not want you injured, so please take a few moments to read the following instructions for safely operating your new Tiller/Cultivator.

Your DR PILOT 2 Cycle Tiller/Cultivator carries prominent safety labels (shown below) to remind you of important information while you are operating the machine. Take a moment to study these labels *before* you operate the machine.

Please, immediately replace labels if they should become unreadable due to fading, or otherwise damaged during use of your DR PILOT 2 Cycle Tiller/Cultivator.



#39928



#39929



#39930

Protecting Yourself and Those around You

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the Tiller/Cultivator and the activity of tilling. Never assume that children will remain where you last saw them.

WARNING!

This tilling machine, can cut, and sever parts of your body if they become in contact with the moving Tines. Always take the following precautions when operating the DR PILOT 2 Cycle Tiller/Cultivator:

- Only allow responsible individuals who have a thorough understanding of these instructions to operate the Tiller/Cultivator. Never allow children to operate the machine.
- Always wear protective goggles or safety glasses with side shields while tilling to protect your eyes from possible foreign objects thrown from the machine.
- Wear shoes with non-slip treads when using this machine. If you have safety shoes, we recommend wearing them. Do not use the machine while barefoot or wearing sandals with exposed toes or heels.
- Avoid wearing loose clothing or jewelry, which can catch on the machine's moving parts.
- We recommend wearing long pants and gloves while using this machine. Be sure the gloves fit properly and do not have loose cuffs or drawstrings.
- Never place your hands, feet, or any part of your body near the Tines when starting the Engine or while the DR PILOT 2 Cycle Tiller/Cultivator's Engine is running.
- Keep children, other bystanders, and pets away from your work area at all times. Stop the Engine when another person or pet approaches.
- Before and while pulling the machine backwards, look behind and down for small children and for secure footing.
- We recommend the use of ear protectors or earplugs rated for at least 20 dba to protect your hearing.

Operating the Tiller/Cultivator Safely

WARNING!

- Clear the work area of objects that might jam or wrap around the Tines such as glass, large sticks, stones, metal objects, wire, rope, and string-like materials. Use on these objects could damage the DR PILOT 2 Cycle Tiller/Cultivator and/or cause injury.
- Do not touch the muffler and Engine when the machine is in use as they become very hot and can cause severe burns.
- The Engine should always be off before adjusting the Wheel Height or Drag Stake.
- Never, under any conditions, remove, bend, cut, fit, weld, or otherwise alter standard parts on the DR PILOT 2 Cycle Tiller/Cultivator. This includes all shields and guards. Modifications to your machine could cause personal injuries and property damage and will void your warranty.
- Do not operate the machine when under the influence of alcohol, drugs, or medication.
- Use the DR PILOT 2 Cycle Tiller/Cultivator only in daylight.
- Do not hurry or take things for granted when using the DR PILOT 2 Cycle Tiller/Cultivator. When in doubt about the machine or your surroundings, stop the machine and take time to look things over.
- Do not use this machine around large roots and surface rocks that you cannot remove prior to use.
- Do not use this machine around underground pipes and wiring.
- Prior to removing material from the Tines by hand, stop the Engine and remove the Spark Plug wire.

Safety with Gasoline-Powered Machines

WARNING!

Gasoline is a highly flammable liquid. Gasoline also gives off flammable vapor that is easy to ignite and cause a fire or explosion. Never overlook the hazards of gasoline and always follow these precautions:

- Never run the DR PILOT 2 Cycle Tiller/Cultivator Engine in an enclosed area or without proper ventilation as the exhaust from the Engine contains carbon monoxide, this is an odorless, tasteless, and deadly poisonous gas.
- Store all fuel and oil in containers specifically designed and approved for this purpose and keep away from heat, open flame, and out of the reach of children.
- Mix the oil and gasoline outdoors and then fill the Fuel Tank outdoors with the Engine off; allowing the Engine to cool completely. Do not handle gasoline if you or anyone nearby is smoking, or if you are near anything that could cause it to ignite or explode. Replace the Fuel Tank and Fuel Container Caps securely.
- If you spill gasoline, do not attempt to start the Engine. Move the machine away from the area of the spill and avoid creating any source of ignition until the gas vapors have dissipated. Wipe up any spilled fuel to prevent a fire hazard and properly dispose of the waste.
- Allow the DR PILOT 2 Cycle Tiller/Cultivator Engine to cool completely before storing in any enclosure. Never store the machine with fuel in the tank or with fuel in a container near an open flame or spark such as a water heater.
- Never make adjustments or repairs with the Engine running. Before making an adjustment or repair, shut off the DR PILOT 2 Cycle Tiller/Cultivator Engine, wait five (5) minutes to cool, then disconnect the spark plug wire and keep the wire away from the spark plug to prevent accidental starting.
- Never check for an ignition spark with the Spark Plug or Spark Plug wire removed. Always use an approved spark tester.
- To reduce fire hazard and keep the Engine from overheating, keep the Engine and Muffler area free of debris or any other combustible material.
- Never operate the Engine without the Muffler. Inspect the Muffler periodically and replace if necessary.
- Never operate the Engine with the Air Filter or Cover over the Carburetor air intake removed, except for adjustment. Removal of such parts could create a fire hazard. Do not use flammable solutions to clean Air Filter.
- Always check Fuel Lines and fittings frequently for cracks or leaks, replace if necessary.
- Replace rubber Fuel Lines and Grommets when worn or damaged, but do not use over five (5) years.

CAUTION!

Safe operation of the DR PILOT 2 Cycle Tiller/Cultivator is necessary to prevent or minimize the risk of minor or moderate injury. Unsafe operation can create a number of hazards for you. Always take the following precautions when operating this machine:

- The DR PILOT 2 Cycle Tiller/Cultivator is a powerful tool and not a plaything. When using this machine, exercise extreme caution at all times. The design of this machine is to till soil. Do not use it for any other purpose.
- Do not cultivate above underground utilities, including water lines, gas lines, electric cables, or pipes. Do not operate the machine on terrain/soil with large rocks and foreign objects which can damage the equipment.
- The tines of the cultivator should not rotate when the engine is idling. If it does rotate when engine is idling, contact DR Power Equipment for instructions.
- The operator or user of the DR PILOT 2 Cycle Tiller/Cultivator is responsible for accidents or hazards occurring to other people, their property, and themselves.
- In an emergency, to quickly stop the machine, simply release the Throttle Lever and shut off the Engine.
- Do not transport the DR PILOT 2 Cycle Tiller/Cultivator from one place to another with the Engine running.
- If the machine should make an unusual noise or vibration during use, shut off the DR PILOT 2 Cycle Tiller/Cultivator Engine. Vibration is generally a warning of trouble. Wait five (5) minutes for the DR PILOT 2 Cycle Tiller/Cultivator Engine to cool, disconnect the Spark Plug wire and then inspect the machine for clogging, damaged Tines, or loose Engine mounting bolts. Clear any obstructions and repair and/or replace damaged parts.
- Always keep the machine in good safe operating condition. Always make certain nuts and bolts are tight and always use the supplied self-locking hardware. Do not use substitute hardware.
- Always shut off the DR PILOT 2 Cycle Tiller/Cultivator Engine, wait five (5) minutes to cool, and disconnect the spark plug wire before attempting to clear any obstructions.
- If the DR PILOT 2 Cycle Tiller/Cultivator Engine should stall, raise the Tines out of the soil by pushing down on the Handlebars. Never squeeze the Throttle Lever when the Tines are already in the ground.
- Never leave the DR PILOT 2 Cycle Tiller/Cultivator unattended with the Engine running.

California Proposition 65

WARNING

California Proposition 65:

- Engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.
- This product contains or emits chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm.

A Note to All Users

No list of Warnings and Cautions can be all-inclusive. If situations occur not covered by this manual, the operator must apply common sense and operate the DR PILOT 2 Cycle Tiller/Cultivator in a safe manner. Visit our website at www.DRpower.com or call **1-800-DR-OWNER (376-9637)** for assistance.

Under California law, and the laws of some other states, you are not permitted to operate an internal combustion Engine using hydrocarbon fuels without an Engine Spark Arrester. This also applies to operation on US Forest Lands. We provide all DR PILOT 2 Cycle Tiller/Cultivators shipped to California and Washington State with Spark Arresters. Failure of the owner/operator to maintain this equipment in compliance with state regulations is a misdemeanor under California law and may be in violation of other state and/or Federal regulations. Contact your local Fire Marshal, Forest Service, State Park Association, or the appropriate State organization for specific information in your area.

Chapter 2: Setting up your DR PILOT 2 Cycle Tiller/Cultivator

This chapter outlines a few simple steps you will need to follow to set up your new machine before you use it. It may be helpful to familiarize yourself with the controls and features on your new machine by reviewing **Figure 1** on the following page before beginning the steps outlined in this chapter. **For technical assistance, please visit our website at www.DRpower.com and one of our Technical Support Representatives will be happy to help you.**

DR PILOT 2 Cycle Tiller/Cultivator Specification Sheet

Engine	2-Cycle, 43cc, Manual Start
Fuel Tank Capacity	36 ounces
Fuel Type	Minimum 87 octane gasoline. NOTE: If using ethanol blended fuel, a fuel stabilizer, mixed to manufacturer specifications, is recommended.
Oil/Gas Ratio	50:1 (2.6 ounces per gallon)
Oil Type	2-Cycle Engine Oil
Spark Plug	Torch L7RTC or Champion RCJ6Y
Spark Plug Gap	.027"
Transmission	Bronze gear drive
Gear Ratio	32:1
Tilling Width	6" minimum to 10" maximum
Tilling Depth	8" max
Tine Speed	250 RPM max
Wheel Size	1.375 x 7.0" diameter
Machine Weight	33 lbs.
Machine Size	35"L x 18"W x 38"H

DR PILOT 2 Cycle Tiller/Cultivator Controls and Features

NOTE: The model shown in Figure 1 may look slightly different from your machine.

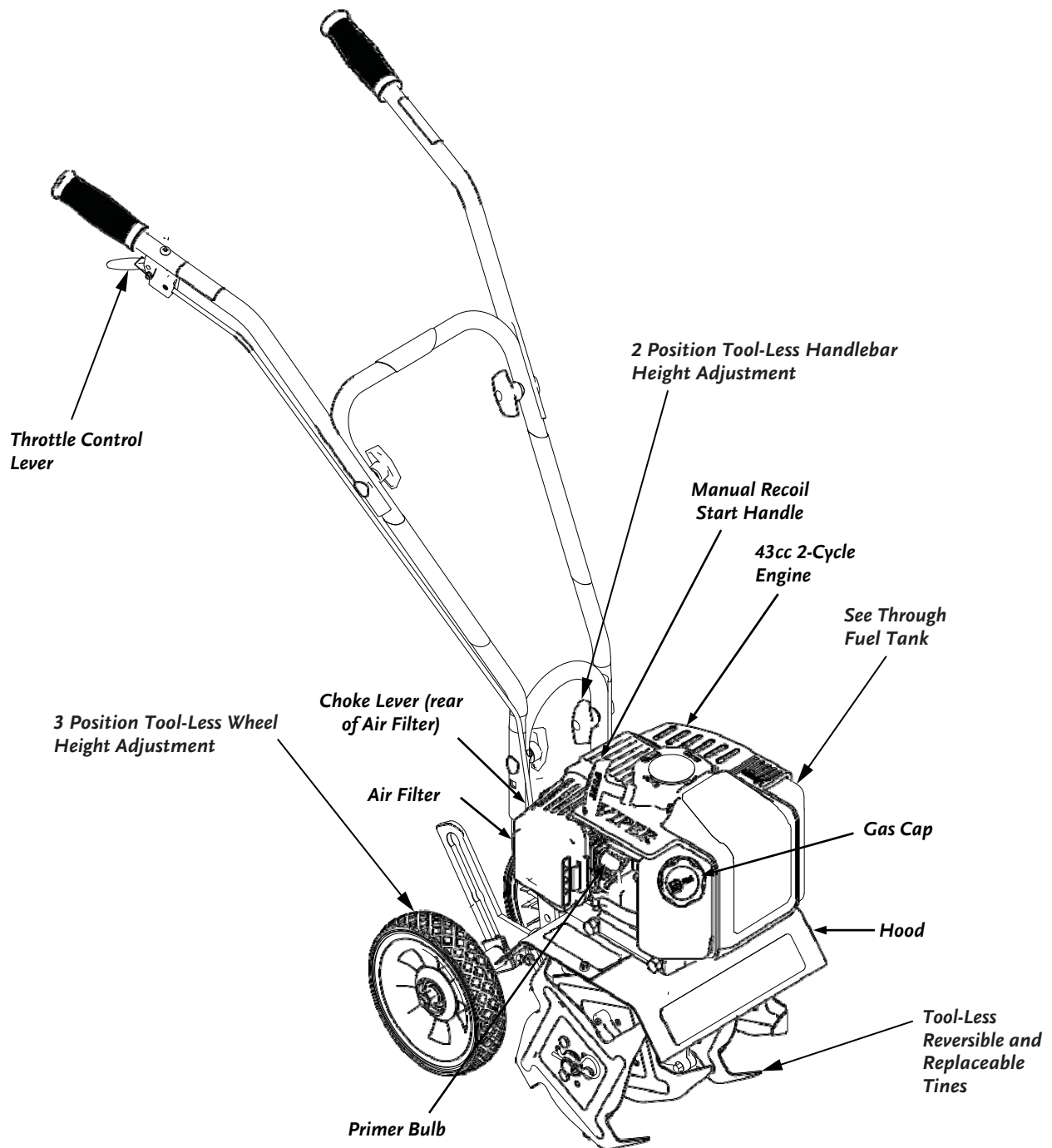


Figure 1

Unpacking and Assembling the Machine

Your DR PILOT 2 Cycle Tiller/Cultivator shipped in one carton, completely assembled except for the Handlebars.

Parts Supplied in Shipping Carton:

- DR PILOT 2 Cycle Tiller/Cultivator
- Upper Left Handlebar
- Upper Right Handlebar
- Middle Handlebar
- *Safety & Operating Instructions Manual*
- Hardware Bag:
 - (4) T-Handle Nut
 - (4) Curved Washer
 - (4) Handle Clamp Bolt

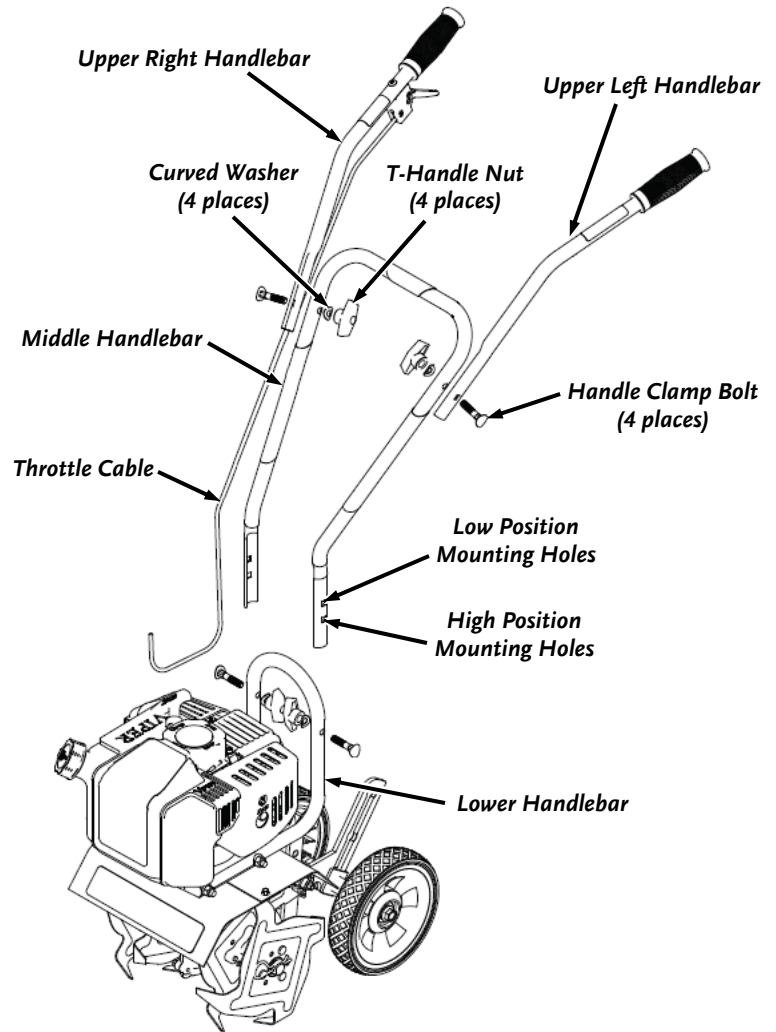


Figure 2

CAUTION!

Stabilize the shipping carton on a flat ground surface before attempting to unpack and assemble the machine. Do not place the machine on a bench or table where it can fall and cause personal injury or damage the machine.

1. Carefully lift the DR PILOT 2 Cycle Tiller/Cultivator out of the carton and set the machine upright with the Tines and Wheels on a level surface.
2. Remove the Hardware Bag from the Shipping Carton.
3. Remove any packing material from the machine and cut the Ties holding the Handlebar pieces to the Tiller/Cultivator assembly.

NOTE: Use care with the Upper Right Handlebar so as not to kink the Throttle Cable; it is pre-attached to the Engine.

4. Using two (2) T-Handle Nuts, two (2) Handle Clamp Bolts and two (2) Curved Washers, assemble the Middle Handlebar to the Lower Handlebar already attached to the machine (**Figure 2**).

NOTE: You can install the Middle Handlebar in either of two (2) positions, one high, and one low. **DO NOT** over tighten the T-Handle Nuts.

5. Attach the Upper Right and Left Handlebars to the Middle Handlebar using the remaining two (2) T-Handle Nuts, two (2) Handle Clamp Bolts, and two (2) Curved Washers (**Figure 2** on page 8). DO NOT over tighten the T-Handle Nuts.
6. The Drag Stake shipped with its pointed end facing upwards. Remove the Lock Pin, turn the Drag Stake around and direct the point in the downward position facing towards the Tines, and then reinsert the Lock Pin (**Figure 3**).
8. Do not discard your packaging material until you are fully satisfied with your new DR PILOT 2 Cycle Tiller/Cultivator.

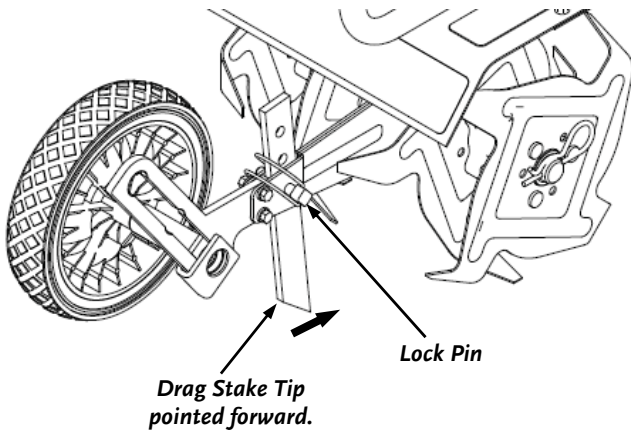


Figure 3

Adding the Gasoline/Oil Mixture

NOTICE

- To operate the Engine you must use 2-cycle Engine oil with unleaded regular gasoline mixed with a 50:1 ratio. Never use straight gasoline, as this will result in damage to the Engine.
- Never mix the gasoline and oil directly in the Engine Fuel Tank. Always use only nonmetal, portable fuel containers approved by UL or ASTM.

Fuel Mixture		
GAS	OIL	RATIO
1 Gallon	2.6 Ounces	50:1
2 Gallons	5.1 Ounces	50:1
5 Gallons	13 Ounces	50:1

1. Fill the fuel container 1/4 full with unleaded regular gasoline outside in a well ventilated area.
2. Add the recommended amount of 2-cycle oil for the fuel you are mixing.
3. Screw the container cap on tight and shake the container to mix the fuel and oil.
4. Unscrew the container cap slowly to vent and add the remainder of the fuel you are mixing.
5. Wipe up any spilled fuel or oil.

Filling the Engine Fuel Tank

WARNING!

Always fill the Fuel Tank outdoors or in a well-ventilated area, away from sparks, open flames, pilot lights, heat, and other ignition sources.

1. Clean any debris from the area around the Fuel Tank Cap and loosen it slowly, placing it on a clean dry surface.
2. Carefully fill the Fuel Tank to avoid spilling, to approximately 1" to 1-1/2" below the bottom of the Fill Neck to allow for fuel expansion. Be careful not to overfill and reinstall the Fuel Tank Cap.
3. Wipe off any spilled fuel before attempting to start the Engine.

NOTE: To refill the Fuel Tank, turn the Engine OFF, and let the Engine cool at least two (2) minutes before removing the Fuel Tank Cap.

Chapter 3: Operating Your DR PILOT 2 Cycle Tiller/Cultivator

This chapter covers the procedures for starting and stopping your new DR PILOT 2 Cycle Tiller/Cultivator and discusses basic operation features.

Before Starting the Engine

NOTICE

- Remove all long vegetation from the site. Long vegetation will wrap around the Tines and cause poor performance. Remove any built up debris from the Tines.
- Remove any debris from the Air Cleaner Holes and around the Fuel Tank Cap for proper airflow.

Cold Engine Start:

1. Push the Primer Bulb in (**Figure 1** on page 7) and then release until it returns to its original position. Repeat this process until the Primer Hose is full of fuel.
2. Move the Choke Lever all the way to the CHOKE position and make sure the On/Off Switch is in the ON position.

CAUTION!

- Make sure the machine is in a stable position before pulling the starter rope.
 - The starter rope can cause an unanticipated jerk towards the Engine. Please follow these instructions to avoid injury.
3. Standing between the Handlebars, squeeze the Throttle Lever with your right hand and push down on the Handlebar lifting the Tines off the ground (**Figure 4**). Grasp the Recoil Starter Handle (**Figure 4**) with your left hand and **slowly pull until you feel resistance**, then pull the cord with a **smooth accelerating motion** to start the Engine. Do not let the Starter Handle snap back against the Engine. One or two pulls usually starts the DR PILOT 2 Cycle Tiller/Cultivator.

NOTE: If the Engine fails to start after 5-6 pulls, push the Primer Bulb 1 more time and pull the Starter Rope again.

4. After the Engine starts, release the Throttle Lever and move your left hand to the Handlebar position for stability. Slowly push the Choke Lever to the half choke position with your right hand until the Engine starts to run smoother and then all the way to the RUN position.
5. Squeeze the Throttle to the desired speed. For the best Engine performance, you should operate the Engine at full Throttle and avoid letting the Engine idle for an extended time.

Warm Engine Start:

1. Make sure the On/Off Switch is in the ON position.
2. Repeat steps 3 through 5 with the Choke in the RUN position.



Figure 4

Stopping the Engine

Turn the On/Off Switch to the OFF position.

NOTICE

Never stop the Engine by moving the Choke Lever to the CHOKE position. This could cause an Engine backfire resulting in Engine damage.

Operating Procedures

NOTICE

- The Tines Drive Clutch will transfer maximum power after about two (2) hours of normal operation. During this break-in period, Clutch slippage may occur and is normal.
 - The Tines should not rotate when the Engine is idling; if they do, contact us at www.DRpower.com for instructions.
 - Use the DR PILOT 2 Cycle Tiller/Cultivator without placing excessive body weight on the machine. The unit operates most efficiently with the weight of the machine itself.
 - Use common sense when using the machine. Learn to recognize the change in sounds when it is overloaded. Turn off the Engine immediately if the machine becomes jammed to prevent damage to the drive system.
-

Handling and Transporting

WARNING!

- Never lift the machine while the Engine is running.
 - If you must use an enclosed vehicle for transportation, remove the fuel into an approved container; never siphon fuel by mouth.
-

Adjusting the Wheels and Drag Stake

Adjusting the Wheels

You can adjust the Wheels on the DR PILOT 2 Cycle Tiller/Cultivator to one (1) of three (3) positions (**Figure 5**). Use the lowest Wheel position for transporting the machine across a smooth level surface while the Engine is not running. Use the two (2) higher positions for tilling in soil and to help stabilize the unit when tilling at different depths.

1. Pull the Locking Sleeve toward the Wheel against the Spring until it releases from one of the three (3) holes in the Vertical Guide.
2. Slide the Wheel Set up or down to the desired position, and then release the Locking Sleeve until it locks into one (1) of the three (3) Holes in the Vertical Guide.

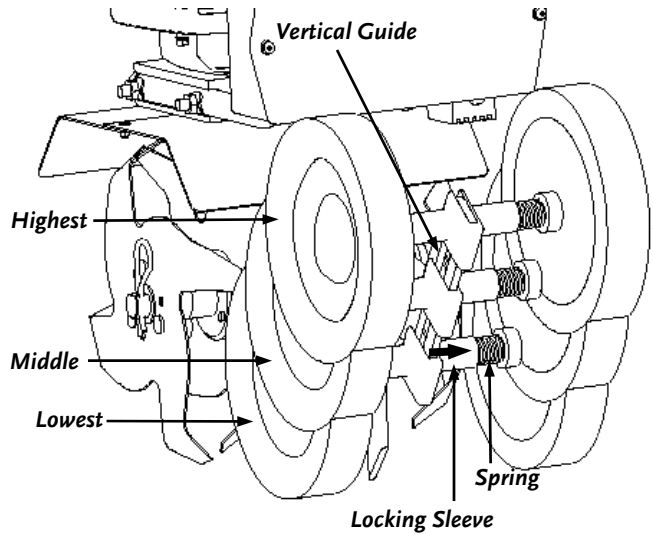


Figure 5

Adjusting the Drag Stake

The Drag Stake (**Figure 6**) is used to help regulate tilling depth and control the machine from lurching forward during operation. Set the Drag Stake in its lowest position of three (3) to provide the greatest resistance to forward motion allowing for deeper tilling.

1. Pull the Lock Pin out of the Drag Stake Mounting Hole.
2. Position the Drag Stake to the desired depth and reinsert the Lock Pin.

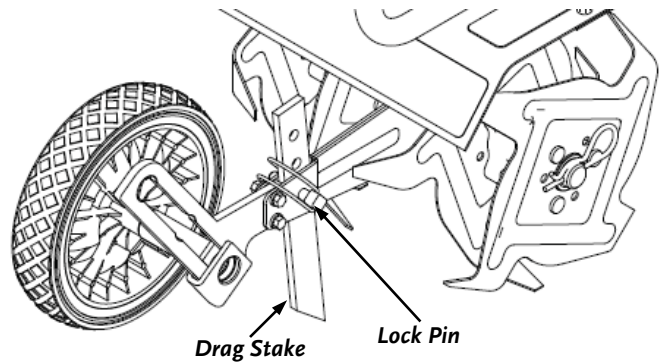


Figure 6

Chapter 4: Maintaining the DR PILOT 2 Cycle Tiller/Cultivator

This chapter covers regular maintenance procedures that will ensure the best performance and long life of your DR PILOT 2 Cycle Tiller/Cultivator.

WARNING!

Prior to performing any maintenance, you must first shut off the Engine; wait five (5) minutes to allow parts to cool and disconnect the Spark Plug wire, keeping it away from the Spark Plug.

Regular Maintenance Checklist

NOTE: Consider that the service intervals shown are the maximum under normal operating conditions. Increase frequencies under extremely dirty or dusty conditions.

Procedure	Before Each Use	Every 8-20 Hours	Every 35 Hours
Check the Engine Fuel Level	▲		
Clean the Tines and Hood*	After each use		
Check the general condition of the machine, e.g. nuts, bolts, welds, etc.	▲		
Clean Engine Exterior & Cooling Fins	▲		
Clean Air Filter		▲	
Check Tines for Wear			▲
Replace Air Filter			▲
Replace Spark Plug			▲

* Cover the Engine Muffler, Carburetor, and Air Filter before using a hose to clean the Tines and Hood.

Lubrication

The Tines Drive Transmission Case has grease installed at the factory. We recommend that once a year to have the Transmission opened by a qualified service professional and the grease level checked. Add a molythium type grease only if the level of the grease is below the top of the gears. **DO NOT OVERFILL.**

Cleaning the Air Filter

NOTICE

Never twist the air filter element when cleaning, always press.

Tool & Supplies Recommended:

- Flat Head Screw Driver
- Liquid Detergent and Warm Water
- Clean Cloth
- Lightweight motor oil

1. Before removing the Air Filter Cover, move the Choke Lever to the CHOKE position (**Figure 7**).
2. To remove the Air Filter Cover, squeeze the Latch Tabs on both sides of the Cover (**Figure 8**).
3. Once you release the Latch Tabs, remove the Air Filter Cover by rotating the Cover away from the Engine (**Figure 9**).
4. Remove the foam Air Filter Element (**Figure 10**) and replace with a new oiled Element, or clean the original foam Element by washing it in liquid detergent and warm water to remove dirt and debris. Press the Filter Element when washing; DO NOT TWIST.
5. Rinse the Filter Element in warm water to remove the soap and dirt.
6. Dry the Filter Element by wrapping it in a clean cloth and pressing the Element until dry.
7. Apply lightweight motor oil or a thin base machine oil to the entire Element and remove the excess oil.
8. Wipe out any dirt from inside the Air Filter Housing and reinstall the foam Element, pressing it evenly in place to fully seat it in its sealed position (**Figure 11**).
9. Replace the Air Filter Cover so that it fully snaps into place and secured by the Latch Tabs. Check that the Cover is securely attached by pulling slightly on the Cover. Reattach the Spark Plug wire.



Figure 7



Figure 8



Figure 9



Figure 10

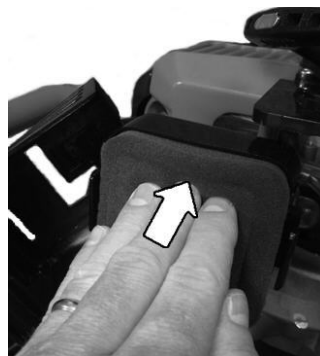


Figure 11

Tine Remove and Replace

NOTE: For ease of disassembly and assembly, block up the machine so that the Tines are off the ground.

Tine Removal:

1. Remove the Hitch Clip Pin from each end of Tine Shaft (**Figure 12**).
2. Slide the four (4) Tines off the Shaft.

Tine Installation:

1. Locate the inside Tines, they are stamped with a **B** and a **C** (**Figure 12**). Slide the inside **B** Tine onto the Left Tine Shaft (as viewed from Handlebars) and then slide the **C** Tine onto the right Tine Shaft.
2. Locate the outside Tines, they are stamped **A** and **D**. Slide the outside **A** Tine onto the Left Tine Shaft and then slide the **D** Tine onto the right Tine Shaft.

NOTE: You should now have the Tines installed in the order **A, B, C, D** from right to left as viewed from the Front of the Tiller/Cultivator. Make sure that the Hub Collars on both the right and left pair of Tines face each other to allow for adequate spacing between the Tine Blades.

3. Replace the Hitch Clip Pins at each end of the Tine Shaft to hold the Tines in place.

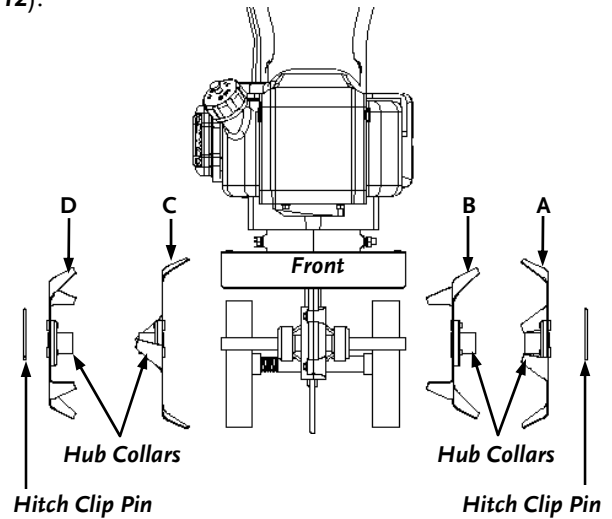


Figure 12

End of Season and Storage

WARNING!

Prior to performing any maintenance, you must first shut off the Engine; wait five (5) minutes to allow parts to cool and disconnect the Spark Plug wire, keeping it away from the Spark Plug.

- If your DR PILOT 2 Cycle Tiller/Cultivator will be idle for more than 30 days, we recommend using a fuel stabilizer. This will prevent sediment from gumming up the carburetor. If there is dirt or moisture in the fuel or tank, remove it by draining the tank. Completely fill the tank with a fresh fuel mixture and add the appropriate amount of stabilizer or fuel additive. Run the Engine for a short time to allow the additive to circulate.
- Remove the Spark Plug and pour about 1 ounce of motor oil into the cylinder hole. Replace the Plug and pull the Recoil Starter Rope until you feel strong resistance. This will coat the Piston and seat the Valves to prevent moisture buildup.
- Clean or replace the Engine Air Filter Element. See page 15.
- Clean dirt and debris from the Engine Cylinder Head Cooling Fins, Debris Screen, and Muffler.
- Clean out residual debris from the under the Tines Hood and Tine Assemblies.
- Touchup all rusted or chipped paint surfaces. Sand them lightly before painting.
- Be sure all Nuts, Bolts, and Screws are securely fastened.
- Inspect moving parts for damage and wear; replace if necessary.
- If possible, store your DR PILOT 2 Cycle Tiller/Cultivator inside, but not near an open flame or spark such as found in a water heater.
- After the DR PILOT 2 Cycle Tiller/Cultivator has cooled, cover the machine with a suitable protective cover that does not retain moisture. Do not use plastic as this material cannot breathe; it also allows condensation to form, which will cause your machine to rust.

Chapter 5: Troubleshooting

Most problems are easy to fix. Consult the Troubleshooting Table for common problems and their solutions. If you continue to experience problems, visit our website at www.DRpower.com or call: **1-800-DR-OWNER (376-9637)** for support.

Troubleshooting Table

WARNING!

Prior to performing any maintenance, you must first shut off the Engine; wait five (5) minutes to allow parts to cool and disconnect the Spark Plug wire, keeping it away from the Spark Plug.

SYMPTOM	POSSIBLE CAUSE
<i>Recoil will not pull out or is difficult to pull.</i>	<ul style="list-style-type: none">⇒ There may be a fuel compression lock in the cylinder. Take out the Spark Plug; hold a rag over the Spark Plug hole and pull the Recoil Cord several times to blow out any oil in the Cylinder. Wipe off the Spark Plug and reinstall it.⇒ The Recoil may be broken or jammed. Visit our website at www.DRpower.com for assistance.
<i>The Engine will not start.</i>	<ul style="list-style-type: none">⇒ Check that the Spark Plug Wire is attached.⇒ Check the fuel level. See page 10.⇒ The fuel line hose is not positioned in the bottom of the Fuel Tank. Push the fuel line down into the fuel in the Fuel Tank.⇒ The fuel may be old; change it if necessary. Use a fuel stabilizer if you keep fuel longer than one month.⇒ Check the Throttle and Choke settings. See page 11.⇒ The Spark Plug may be dirty or cracked; change it if necessary. If it's wet, leave it out, hold a rag over the Plug Hole and pull the Recoil Cord several times to blow out any fuel in the Cylinder, then wipe off the Plug and reinsert it.⇒ The Air Filter may be dirty; clean it following the procedure on page 15.⇒ If your Engine still won't start, visit our website at www.DRpower.com for assistance.
<i>The Engine lacks power or is not running smoothly.</i>	<ul style="list-style-type: none">⇒ Make sure that you run the Engine at full Throttle.⇒ The Air Filter may be dirty; clean it following the procedure on page 15.⇒ The Spark Plug may be dirty or cracked; change it if necessary. If it's wet, leave it out, hold a rag over the Plug Hole and pull the Recoil Cord several times to blow out any fuel in the Cylinder, then wipe off the Plug and reinsert it.⇒ The fuel may be old; change it if necessary. Use a fuel stabilizer if you keep fuel longer than one month.⇒ The Choke may be partially in the CHOKE position, place in the RUN position.⇒ The Fuel Filter in the Fuel Tank may be clogged; clean or replace the filter.⇒ If your Engine still lacks power, visit our website at www.DRpower.com for assistance.

WARNING!

Prior to performing any maintenance, you must first shut off the Engine; wait five (5) minutes to allow parts to cool and disconnect the Spark Plug wire, keeping it away from the Spark Plug.

SYMPTOM	POSSIBLE CAUSE
<i>Engine smokes.</i>	<ul style="list-style-type: none">⇒ You may have the wrong gas/oil mixture. See page 10.⇒ The Air Filter may be dirty; clean it following the procedure on page 15.⇒ Clean the Engine cooling fins and the carburetor housing if they are dirty.⇒ If the Engine still smokes, visit our website at www.DRpower.com for assistance.
<i>The Engine runs well but the Tines won't move.</i>	<ul style="list-style-type: none">⇒ The Tine Drive Clutch may be faulty, visit our website at www.DRpower.com for assistance.
<i>The Tines turn when the Engine is idling.</i>	<ul style="list-style-type: none">⇒ Engine idle speed is too high, visit our website at www.DRpower.com for assistance.⇒ Broken Tine Drive Clutch Spring, replace the Spring.
<i>The Engine runs well but labors when tilling.</i>	<ul style="list-style-type: none">⇒ Operator is being too aggressive; raise the Tines by pushing down on the Handlebars.⇒ Be sure to run the Engine at full Throttle.
<i>Excessive bounce and difficult handling.</i>	<ul style="list-style-type: none">⇒ The area you are tilling may be too dry and hard. Moisten the ground or wait for conditions that are more favorable.⇒ Be sure to run the Engine at full Throttle.⇒ If your DR PILOT 2 Cycle Tiller/Cultivator still bounces, visit our website at www.DRpower.com for assistance.
<i>The tilled soil balls up or clumps.</i>	<ul style="list-style-type: none">⇒ The ground that you are trying to till is too moist.

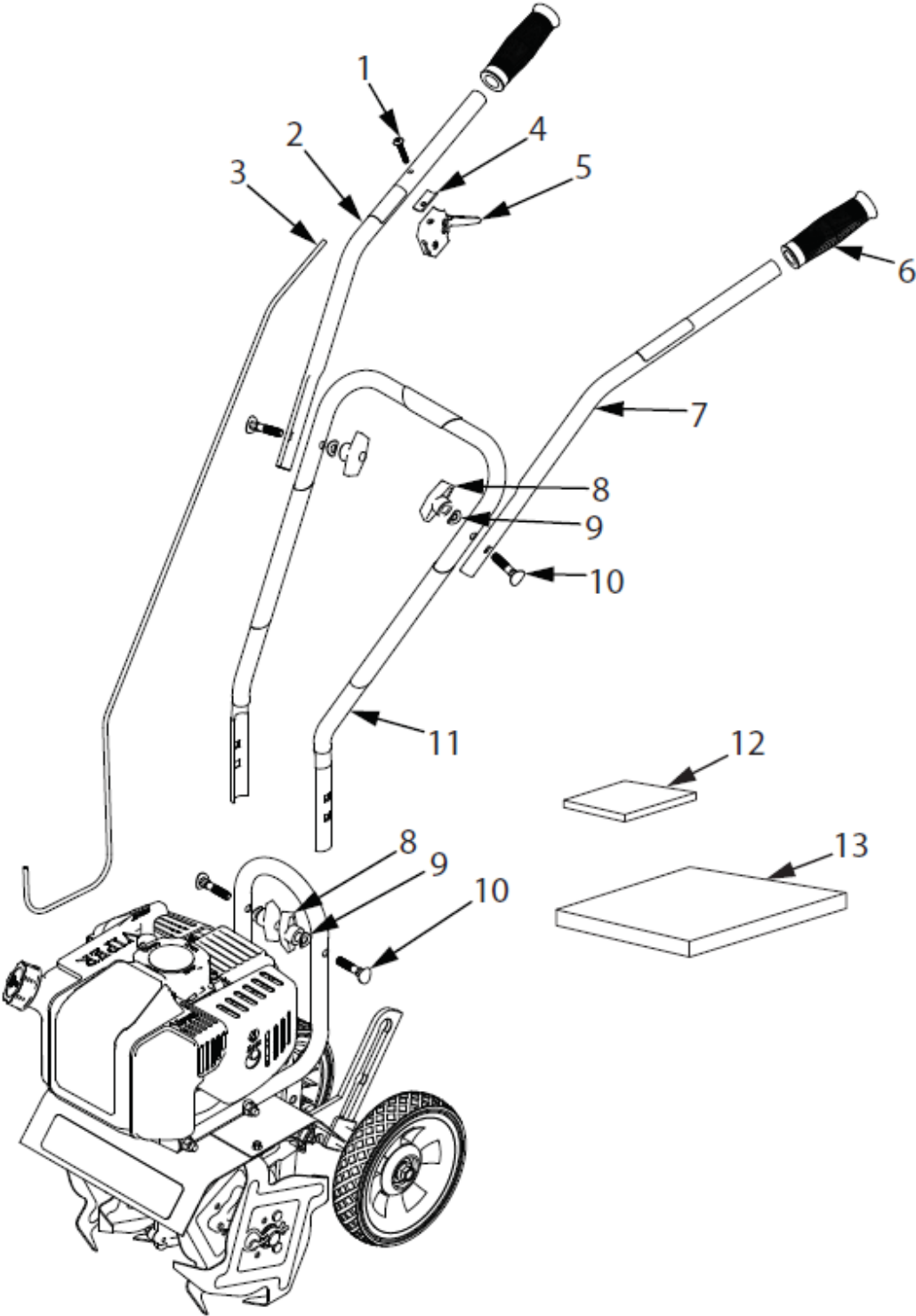
Chapter 6: Parts Lists and Schematic Diagrams

Parts List - Handlebar Assembly

NOTE: Part numbers listed are available through DR Power Equipment.

Ref#	Part#	Description
1	26161	Bolt 10-24 X 1-1/4 Phillips
2	39902	Handlebar Upper Right
3	25196	Throttle Cable
4	39903	Rubber Pad
5	39904	Trigger Assembly Short Throw
6	26144	Handlebar Grip
7	39905	Handlebar Upper Left
8	25729	T-Handle Nut
9	26146	Curved Washer
10	26147	Saddle Bolt
11	26159	Handlebar Middle
12	39906	Handlebar Parts Packet
13	39907	Manual Parts Bag

Schematic Diagram - Handlebar Assembly



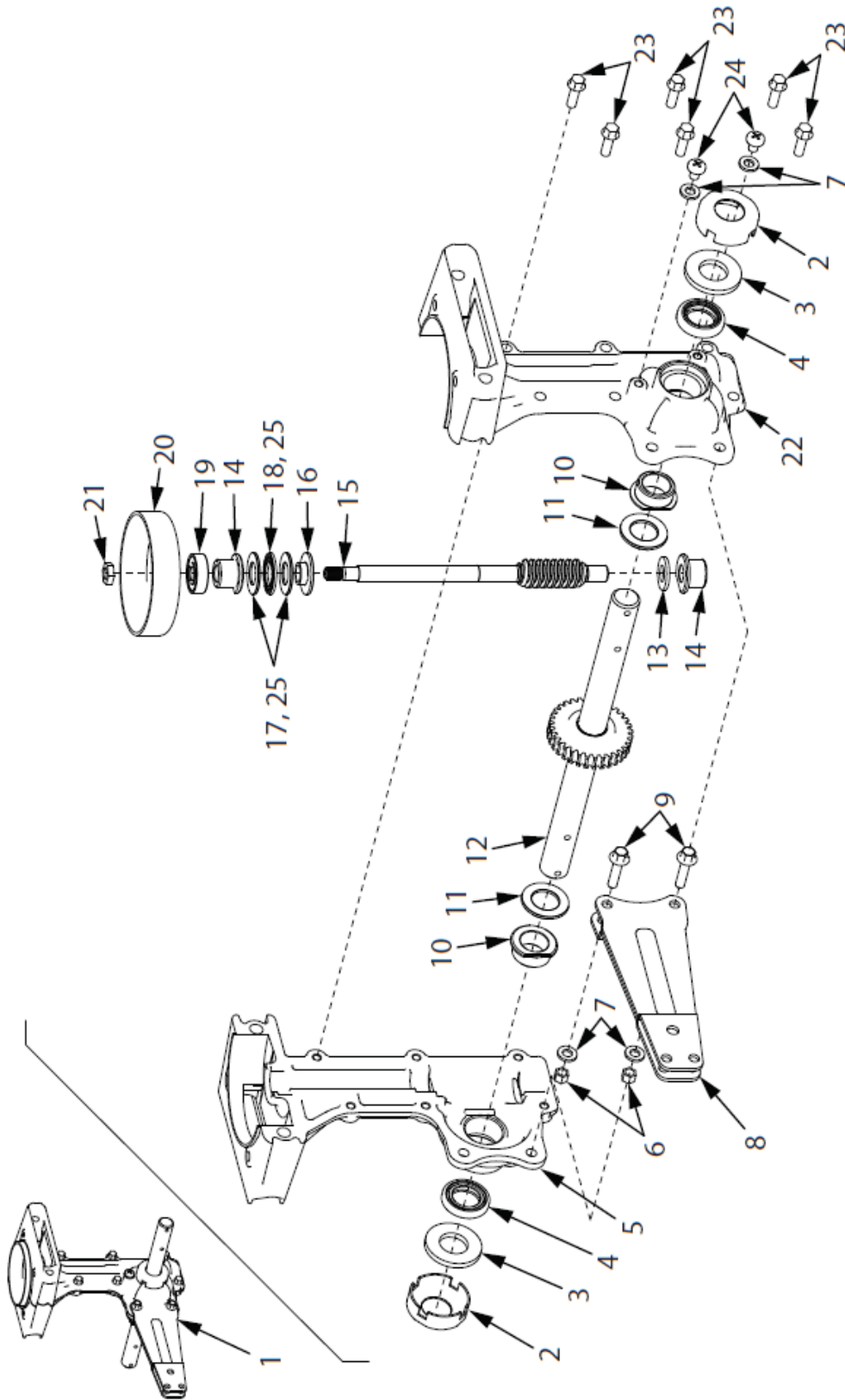
Parts List - Transmission Assembly

NOTE: Part numbers listed are available through DR Power Equipment.

Ref#	Part#	Description
1	39908	Transmission Assembly
2	26121	Dust Cap
3	26118	Fiber Washer
4	39909	Tine Shaft Seal
5*	39910	Transmission Casting Left
6	26127	Nut M6 Nylock
7	39911	Washer M6 X 12 X 1 Mm
8	26104	Wheel & Drag Stake Mount
9	39912	Bolt M6 X 1.0 X 25 Hex Flange
10	39913	Tine Shaft Bushing Steel
11	39914	Tine Shaft Shim
12	39915	Gear And Tine Shaft Assy
13	39916	Bushing Spacer
14	39917	Drive Shaft Bushing Bronze
15	39918	Drive Shaft
16	39919	Thrust Bearing Reducer
17	39920	Thrust Washer
18	39921	Thrust Bearing Cage
19	39922	Ball Bearing 9 X 26 X 8 Mm
20	25737	Clutch Drum
21	39923	Jam Nut M8
22*	39924	Transmission Casting Right
23	39925	Bolt M6 X 1.0 X 18 Hex Flange
24	39926	Bolt M6 X 1.0 X 8 Phillips
25	39927	Kit Thrust Bearing Set

* Purchase Transmission Assembly 39908

Schematic Diagram - Transmission Assembly

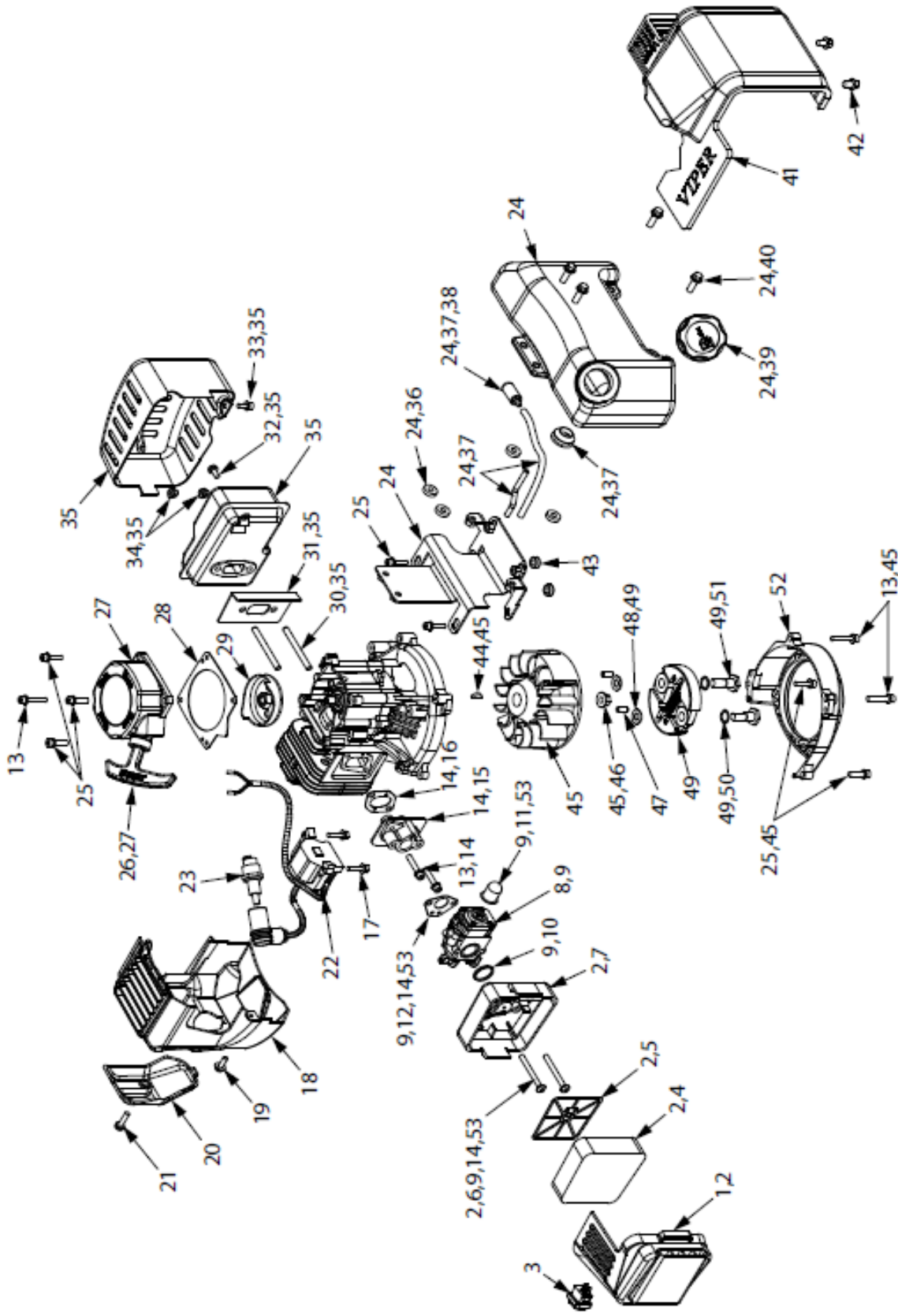


Parts List - Engine Assembly

NOTE: Part numbers listed are available through DR Power Equipment.

Ref#	Part#	Description	Ref#	Part#	Description
1	26377	Air Filter Cover	27	26170	Recoil Assembly
2	39931	Kit Air Filter Assembly	28	39949	Recoil Spacer Plate
3	26177	Rocker Switch	29	31431	Recoil Clutch Cup
4	26180	Foam Element Air Filter Block	30	33841	Stud M6 X 62
5	39932	Air Filter Reinforcement Frame	31	39950	Gasket Muffler Heat Shield
6	39933	Bolt M5 X 52 With Washer	32	26139	Bolt M5 X 12 With Washer
7	26179	Air Filter Base Assembly	33	39951	Bolt M5 X 12 Socket Head With Washer
8	39934	Carburetor 43cc No Tamp	34	39952	Nut M6 X 1 Hex Flange
9	39935	Kit Carburetor Replacement	35	39953	Kit Muffler Straight Ejection Dps30
10	39936	Carburetor O-Ring	36	39954	Spacer M5 X 4 Nylon
11	26176	Carburetor Primer Bulb	37	31673	Kit Fuel Line Two Hole Grommet
12	38003	Carburetor Gasket	38	26178	Fuel Filter
13	39937	Bolt M5 X 28 With Washer	39	26049	Gas Cap Two Way Self Venting
14	39938	Kit Intake Manifold	40	39925	Bolt M6 X 18 Hex Flange
15	36916	Windpipe Intake	41	26376	Gas Tank Shroud Black
16	39939	Gasket Intake	42	39955	Bolt M6 X 10 Hex Flange
17	39940	Bolt M5 X 20 Hex Head With Washer	43	39956	Spacer M5 X 5
18	39941	Engine Shroud Red	44	39957	Key Woodruff 3 X 5 X 12
19	39942	Bolt M5 X 16 Button Head With Washer	45	39958	Kit Flywheel
20	39943	Engine Shroud Cap End Black	46	39959	Nut M8 X 1.25 Hex Flange
21	39944	Bolt M5 X 20 Button Head With Washer	47	39960	Dowel Pin 5 X 12
22	39945	Ignition Coil	48	39961	Washer 15.8 X 8.4 X 1.6
23	39946	Spark Plug L7rtc Torch	49	39962	Kit Clutch
24	26726	Kit Gas Tank	50	39963	Wave Washer 10 X 15 X 0.25
25	39947	Bolt M5 X 20 With Washer	51	39964	Bolt M8 X 25 Shoulder 10
26	39948	Recoil Handle	52	39965	Flywheel Shroud
			53	39966	Kit Carburetor Repair

Schematic Diagram - Engine Assembly



Parts List and Schematic Diagram - Tines and Hood Assembly

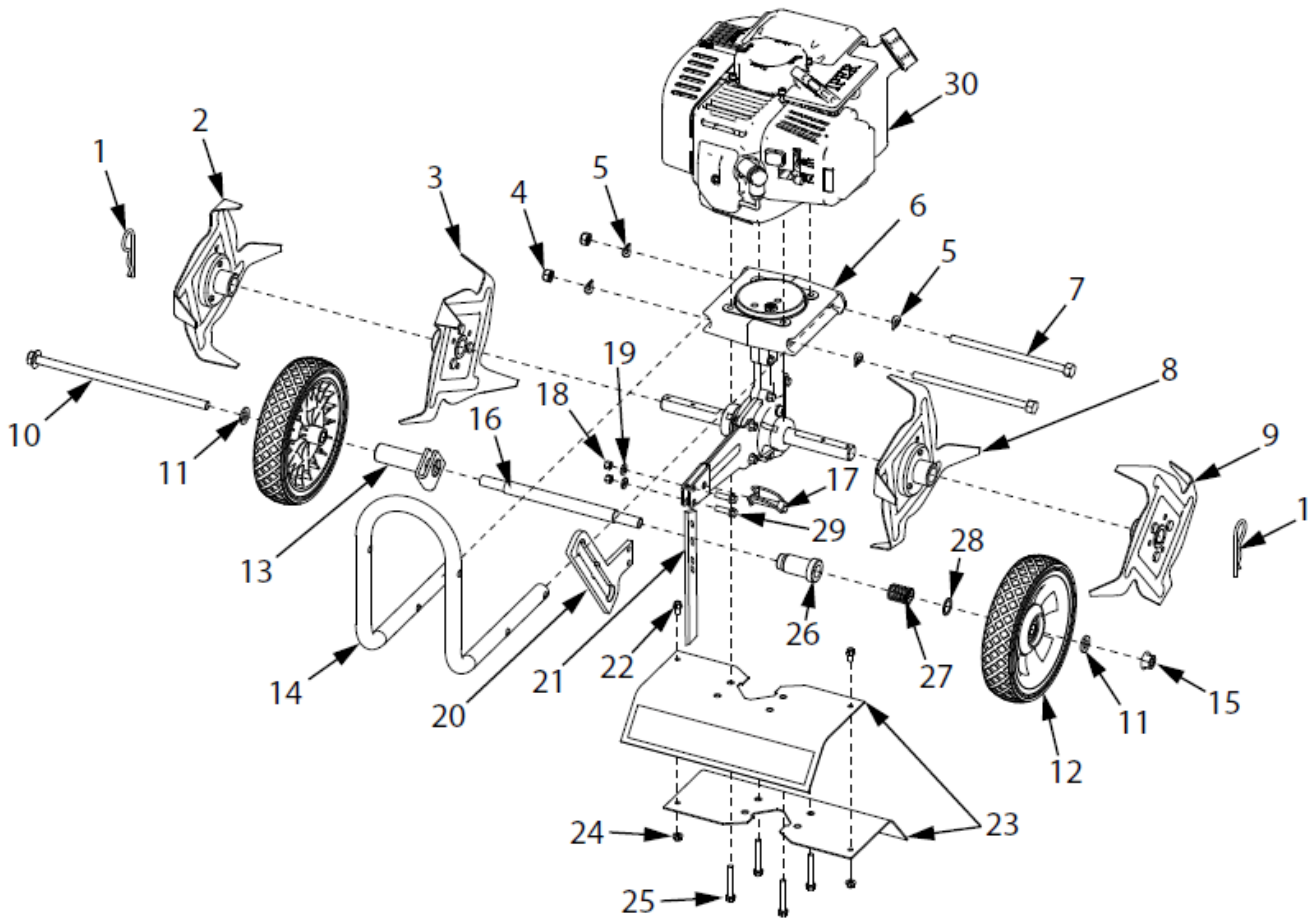
NOTE: Part numbers listed are available through DR Power Equipment.

Ref#	Part#	Description
1	26128	Hair Pin, 5/8-3/4 Inch Cotter
2	26114	Tine "A" Right Outside
3	26116	Tine "B" Right Inside
4	39967	Nut M8 Nylock
5	26146	Washer M8 Curved
6	39908	Transmission Assembly
7	26143	Bolt M8 X 1.25 X 155 Hex Flange
8	26115	Tine "C" Left Inside
9	26117	Tine "D" Left Outside
10	26134	Bolt M10 X 1.5 X 231 Hex Flange
11	26112	Washer M10 Narrow Flat
12	39968	Wheel 180 X 38 mm Diamond Tread Grey Hub
13	26131	Guide Wheel Tube
14	39969	Handlebar Lower
15	26125	Nut M10 X 1.5 Center Lock Hex
16	26130	Wheel Tube
17	39970	Pin Lock 8mm X 40mm

Ref#	Part#	Description
18	26127	Nut M6 Nylock
19	39971	Washer M6 X 13 X 1.75 Flat
20	26129	Wheel Holder
21	26113	Drag Stake
22	39972	Bolt M5 X 0.8 X 10 Hex Flange
23	39973	Tine Shield
24	39974	Nut M5 X 0.8 Nylock Flange
25	26124	Bolt M6 X 1.0 X 42 Hex Flange
26	26132	Tube Wheel Lock
27	26133	Spring Wheel Lock
28	13230	Washer 21 X 16 X 1 mm
29	46142	Bolt M6 X 1.0 X 15 Hex Flange
30	23433	Engine Mc43

Not Illustrated:

39928	Label, Controls, Tine Engage
39929	Label, Warning, Keep away from rotating tines
39930	Label, Operation, Place Free Hand Here



NOTES:

Daily Checklist for the DR PILOT 2 Cycle Tiller/Cultivator

To help maintain your DR PILOT 2 Cycle Tiller/Cultivator for optimum performance, we recommend you follow this checklist each time you use your machine.

WARNING!

When performing any maintenance, you must first shut off the Engine; wait five (5) minutes to allow parts to cool and disconnect the Spark Plug wire, keeping it away from the Spark Plug.

- [] **FUEL:** Fill the Fuel Tank with a fresh unleaded gasoline/2-cycle oil mixture. See page 10.
- [] **ENGINE:** It is very important to keep the Engine clean. Remove dirt and other debris from the Engine Cooling Fins. A dirty Engine retains heat and can cause damage to internal Engine components.
- [] **HARDWARE:** Check all nuts and bolts to be sure that the components are secure.
- [] **FRAME:** Check all welds to be sure that the Frame is intact and secure.
- [] **TINES:** Make sure that the Tine Assemblies and Hood are free of accumulated debris.



DR Power Equipment

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